Protein-polysaccharide particles: A new generation of food grade emulsifier

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Particle-Stabilizing Emulsion Concept

Emulsions stabilized by solid particles have been developed to cover food safety and stability issue of classical emulsifiers.

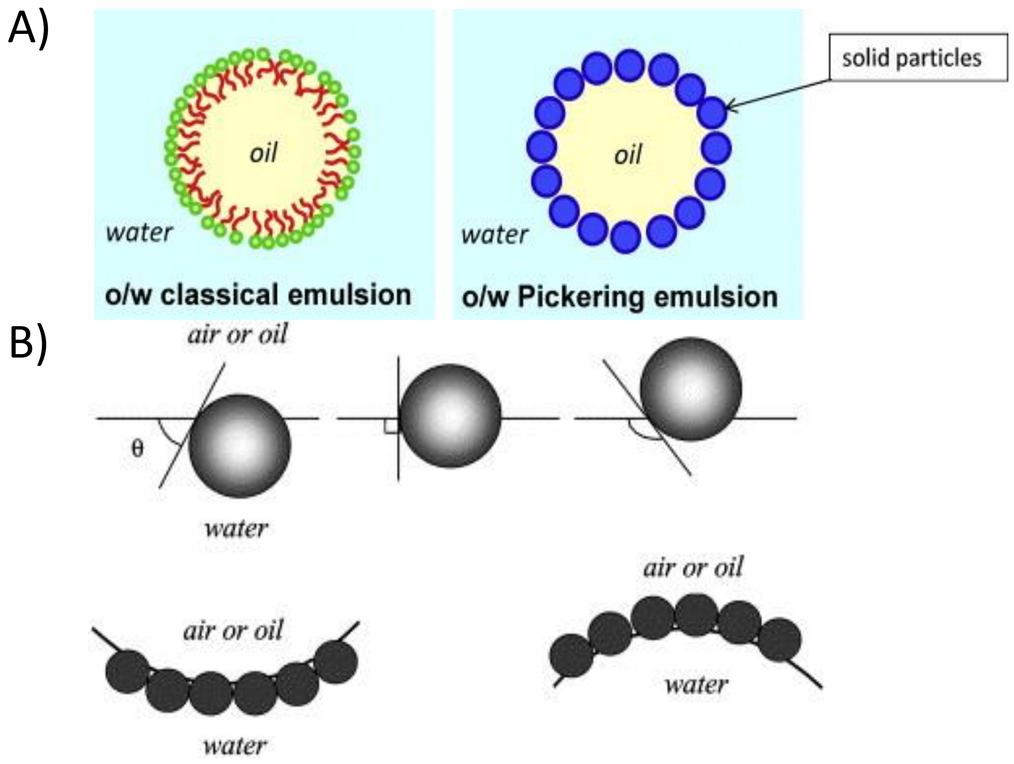

Figure 1. Comparison between classical and Pickering emulsion (A) and bending behavior of oil-water interface for a contact angle <90° (left) and >90° (right) (B).

Particle and Emulsion Preparation

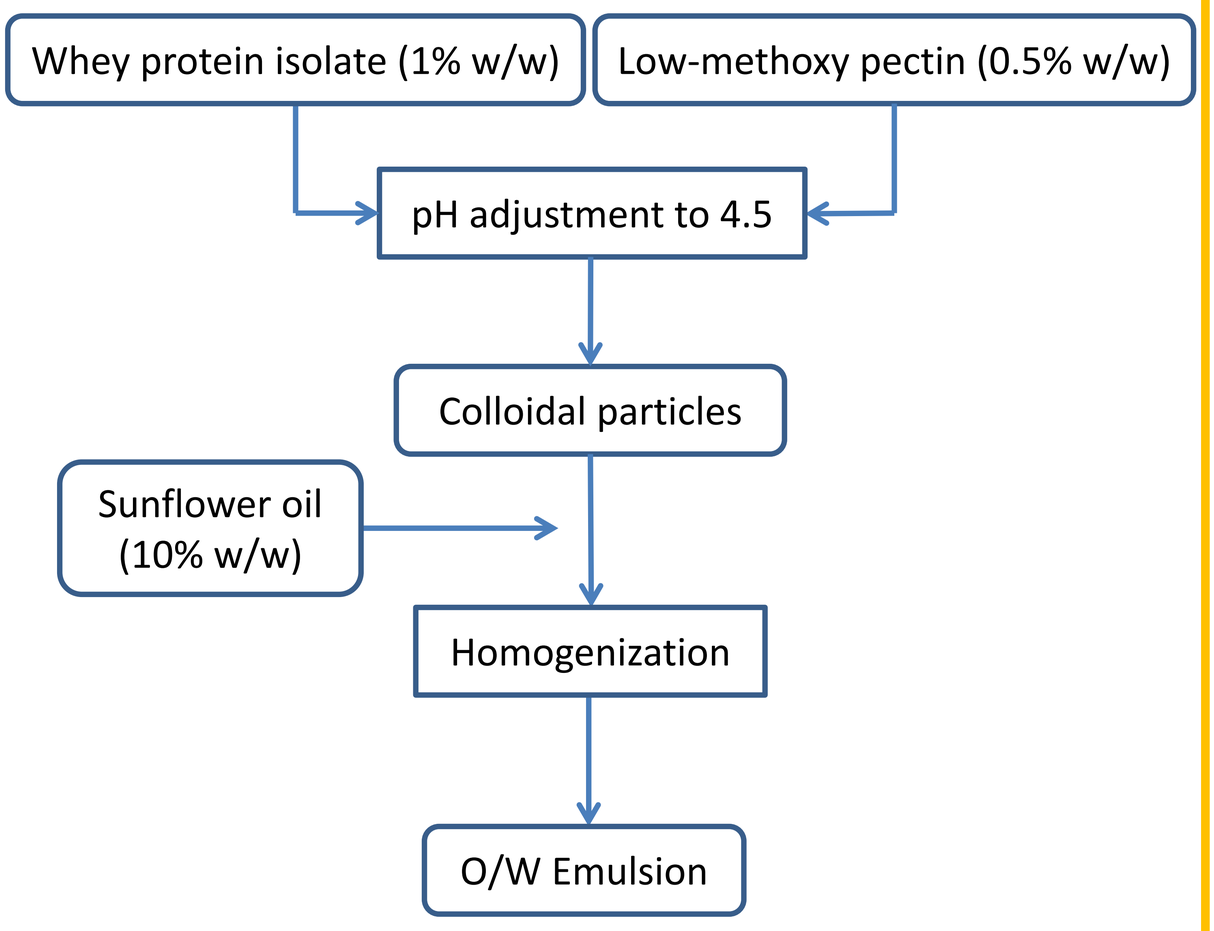

Figure 2. Flowchart diagram of the particle and the emulsion preparation.

Results

Pickering emulsion stabilization using food-grade nanoparticles from whey protein isolate (WPI) and low-methoxy pectin (LMP).

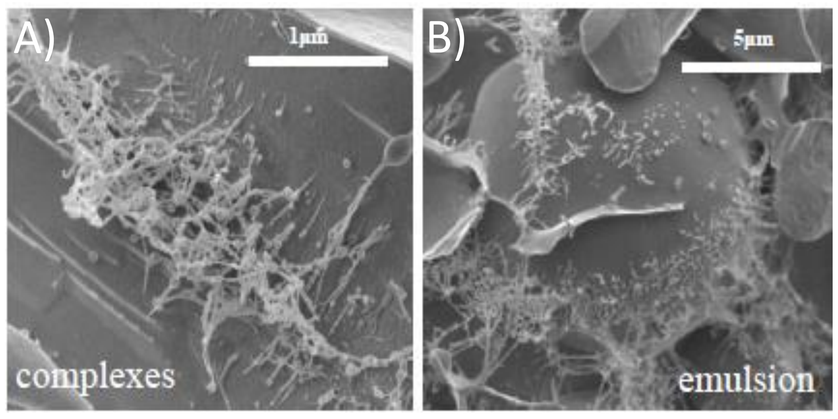

Figure 3. Cryo-SEM images of WPI-LMP particles (A) and the emulsion (B); Particle size distribution of WPI-LMP particles (Z-average diameter=164.1 nm) (C).

Stabilization of O/W emulsion at the isoelectric point of WPI (pH=4.5) by WPI-LMP particles.

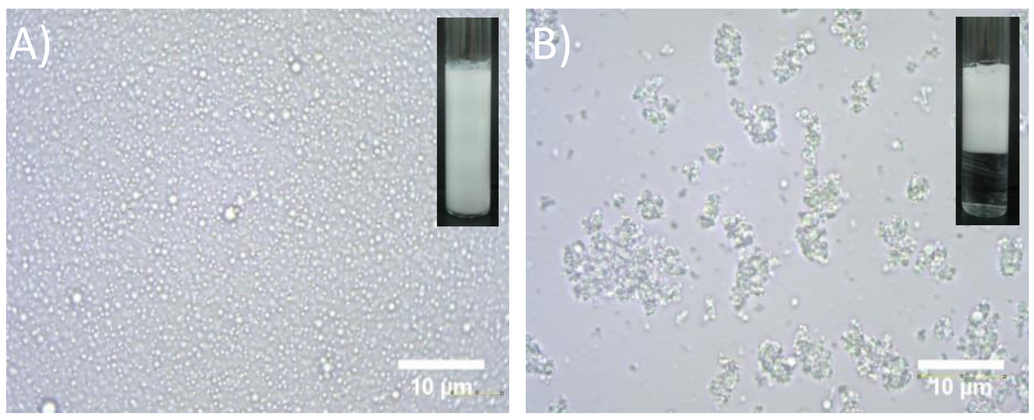

Figure 4. Optical microscope of emulsion stabilized by WPI-LMP (A) and only WPI (B); (C) Droplet size distribution of the emulsions.

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